Remarks

I. INTRODUCTION

The Office Action mailed on October 12, 2006 and the references cited therein have been carefully studied and, in view of the foregoing amendments and following remarks, reconsideration and allowance of this application are most respectfully requested.

Claims 1-43 are currently pending in this application. The Examiner has withdrawn claims 9-12, 14, and 16-43 from consideration. The Examiner has rejected claims 1-8, 13 and 15. By the current amendment, claims 1 has been amended. Applicants respectfully submit that the pending claims are in condition for allowance.

Applicants note that on the Office Action Summary the Examiner indicates that the present rejection is responsive to communications filed on 11/3/05 and 3/31/04, but does not make reference to the Applicant's Response to Office Action filed 3/13/06. Nor is there any reference to the Applicant's 3/13/06 response in the remainder of the present Office Action.

II. REJECTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

The Examiner has rejected claims 1-7 under 35 U.S.C. §112, first paragraph, as allegedly not being enabled by the specification. The Examiner states that "the specification does not reasonably provide enablement for a -X-Z-Y- substituent with X and Y being heteroatom, heteroatom-containing group, or heterocycle, Z being divalent." Applicants respectfully disagree with the Examiner's position and submit that the claims are fully enabled for at least the following reasons.

"The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosure in the patent coupled with information known in the art

without undue experimentation." *United States v. Telectronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988). The critical test is not whether experimentation is necessary or complex, but whether the experimentation is undue. *In re Angstadt*, 537 F.2d 498 (C.C.P.A. 1976). It is well settled that an applicant need not make or test all embodiments of the invention in order to meet the enablement requirement of 35 U.S.C. §112. So long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, the enablement requirement of 35 U.S.C. §112 is satisfied. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

Applicants respectfully submit that the breadth of the claims with respect to -X-Z-Y- is enabled by the specification consistent with the requirements of section 112. -X-Z-Y- shown in formula I of Claim 1 is defined in the specification at paragraph [00079] as one anionic ligand in which the "divalent linker" (Z) is "an atom or group to which two atoms or groups [X and Y] may be bonded." Claim 1 states that X and Y are each independently selected from a heteroatom, heteroatom-containing group or heterocycle. "Heteroatom" is defined in the specification at paragraph [00077] as S, O, N and P. Heterocyclic is defined in the specification at paragraph [00076] as referring to "a 3 to 7 membered ring containing at least one heteroatom" and includes aromatic rings such as pyrazole, triazole, tetrazole, thiazole, furan, thiophene, pyridine, and non-aromatic rings such as piperazine, piperidine, and pyrrolidine. Having thus defined the components of the "-X-Z-Y-" group as well as the "divalent linker" and having further defined the term "heterocyclic" and the term "heteroatom," the breadth of -X-Z-Y- in the formula depicted in claim 1 does not include "all known heteroatom, heteroatom containing group or heterocycle substituents" as asserted by the Examiner.

The level of skill and predictability in the art at the time the application was filed would not require "that every known heterocycle be tested in order to determine which heterocycles would have functionality appropriate for coordinating to M." Further, the "numerous permutations and combinations" encompassed by the terms "heteroatom," "heteroatom containing group" or "heterocycle" do not render the definition of -X-Z-Y- unclear nor does the definition require an undue amount of experimentation to practice the invention. Given the definitions of "-X-Y-Z-," "divalent linker," "heteroatom" and "heterocyclic" as well as the other parameters set forth in the specification, predicting appropriate heterocycles in view of the teachings in the application, without undue experimentation, was well within the capabilities of one of ordinary skill in the art of coordination chemistry at the time the invention was filed. A person of ordinary skill in the art would certainly understand the principles relating to the coordination of heterocycles to metal atoms, for example, as explained in the text book *Advanced Inorganic Chemistry* by F. A. Cotton and G. Wilkinson (John Wiley & Sons).

The direction provided by Applicants (which the examiner admits supports at least pyrazoles, triazoles, tetrazoles, thiazoles, furans and pyridines heterocycle substituents) is sufficient to support the breadth of the present claims. The "X-Z-Y" group, the "divalent linker", "heteroatom" and "heterocyclic" are clearly defined in the specification such that one of ordinary skill in the art could practice the invention using methods and materials known in the art without undue experimentation at the time the invention was filed. Representative OLED methods, materials and configurations are described in U.S. Patent Nos. 5,703,436; 5,707,745; 5,834,893; 5,844,363; 6,097,147; and 6,303,238; each of which is incorporated by reference in its entirety in the present specification (see paragraph [00058]). The information incorporated by reference is as much a part of the application as filed as if the text was repeated

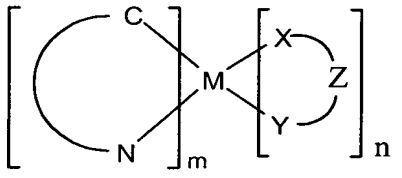
in the application, and should be treated as part of the text of the application as filed. MPEP 2163.07.

Coupled with the knowledge of one of ordinary skill in the art, Applicants respectfully submit that the specification provides sufficient guidance to one of ordinary skill in the art to practice the full scope of the current claims without undue experimentation. Accordingly, withdrawal of the rejection of the claims under 35 U.S.C. § 112, first paragraph, as allegedly not being enabled by the specification, is respectfully requested.

The Examiner has also rejected claim 1 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement, as the claim "contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention." Applicants respectfully disagree with the Examiner's position and submit that Claim 1 meets the requirements for written description for at least the following reasons.

The Examiner has the initial burden, after a thorough reading and evaluation of the content of the application, of presenting evidence or reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims. There is a strong presumption that an adequate written description of the claimed invention is present in the specification as filed, *Wertheim*, 541 F.2d at 262, 191 USPQ at 96. MPEP 2163(II)(A).

Applicants respectfully submit that claim 1 finds full written description support in the specification of the present application at least at paragraphs [00049] and [00051]. Paragraph [00049] provides a clear description of the chemical structure of Formula I and is reproduced in pertinent part below:

> Organometallic compound of the present invention can be represented by the following general structure Formula I:
>
> 
>
> I
>
> in which C-N is a cyclometallated ligand, M is a metal with an atomic weight of greater than 40, X and Y are independently selected groups incorporating a heteroatom, Z is a divalent linker, and m and n are integers selected from 1 and 2. The sum of n + m is 2 or 3.

Paragraph [00051] provides a clear description of Z, which is also found in claim 1 and is reproduced in pertinent part below:

> The divalent linker, Z, can be represented by the general structure $JR'_pR''_q$ wherein J is hydrogen or a metal or non-metal, selected as appropriate to bond to X and Y, R' and R" are independently H, alkyl, aryl, heteroaryl, halogen, hydroxy, alkoxy, aryloxy, amino, alkylamino, arylamino, sulfido, alkylsulfido, arylsulfido, phosphino, alkylphosphino or arylphosphino and p and q are integers between 0 and 2.

The Examiner states that "[t]he claims recite a -X-Z-Y- substituent with X and Y being heteroatom, heteroatom-containing group or heterocycle, Z being a divalent linker" and that "[t]here are no examples nor is there any description or definition of what these groups are." Applicants respectfully disagree. -X-Z-Y- shown in formula I of Claim 1 is defined in the specification at paragraph [00079] as one anionic ligand in which the "divalent linker" (Z) is "an atom or group to which two atoms or groups [X and Y] may be bonded." "Heteroatom" is defined in the specification at paragraph [00077] as S, O, N and P. "Heterocyclic" is defined in the specification at paragraph [00076] as "a 3 to 7 membered ring containing at least one

heteroatom" and includes aromatic rings such as pyrazole, triazole, tetrazole, thiazole, furan, thiophene, pyridine, and non-aromatic rings such as piperazine, piperidine, and pyrrolidine.

For the foregoing reasons, Applicants respectfully submit that Claim 1 fully complies with the written description requirement of 35 U.S.C. §112, first paragraph.

III. REJECTIONS UNDER 35 U.S.C. § 102

The Examiner has rejected claim 1-8, 13 and 15 under 35 U.S.C. §102(b) as being anticipated by Onishi et al., Chem. Letts. 1976, 955-958 ("Onishi et al."). Applicants have amended claim 1. As amended, claim 1 is directed to compounds of the formula I in which m and n are integers selected from 1 and 2 wherein the sum of n + m is 3. Applicants respectfully submit that Onishi et al. does not teach or suggest the compound of claim 1, as amended. Each of the claims 2-8, 13 and 15 depend directly or indirectly from claim 1. Thus, applicants respectfully submit that the rejection under 35 U.S.C. §102(b) is overcome.

IV. REJECTIONS UNDER 35 U.S.C. § 103

The Examiner has rejected claim 1-8 and 13 under 35 U.S.C. §103(a) as being unpatentable over Lamansky et at. (U.S. Publication No. 2002/0182441) in view of Fernandez et al. (*Polyhedron* **1991**, *10*(14), 1595-8). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons.

For convenient reference, the provisions of 35 U.S.C. §103(c) are reproduced below:

> 35 U.S.C. §103 (c)
>
> (1) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of

section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

(2) For purposes of this subsection, subject matter developed by another person and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person if -

(A) the claimed invention was made by or on behalf of parties to a joint research agreement that was in effect on or before the date the claimed invention was made;

(B) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and

(C) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.

(3) For purposes of paragraph (2), the term "joint research agreement" means a written contract, grant, or cooperative agreement entered into by two or more persons or entities for the performance of experimental, developmental, or research work in the field of the claimed invention.

Applicants respectfully submit that under the provisions of 35 U.S.C. §103(c), Lamansky et al. is not properly applied against the present application as prior art under 35 U.S.C. §103, as each of the provisions of 35 U.S.C. §103(c) are met. Specifically, the claimed invention was made by, on behalf of, and/or in connection with one or more of the following parties to a joint university-corporation research agreement: Princeton University, The University of Southern California, and the Universal Display Corporation. The agreement was in effect on and before the date the claimed invention was made, and the claimed invention was

made as a result of activities undertaken within the scope of the agreement. The specification of the present application was amended to disclose the names of the parties to the joint research agreement in the Response to Office Action mailed March 13, 2006.

For at least the foregoing reason, applicants respectfully submit that the rejection under 35 U.S.C. §103(a) should be withdrawn.

V. CONCLUSION

Applicants respectfully submit that the pending claims are in condition for allowance and requests that such action be taken. If for any reason the Examiner believes that prosecution of this application would be advanced by contact with the Applicant's attorney, the Examiner is invited to contact the undersigned at the telephone number below.

Respectfully submitted,
KENYON & KENYON LLP

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By: 

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